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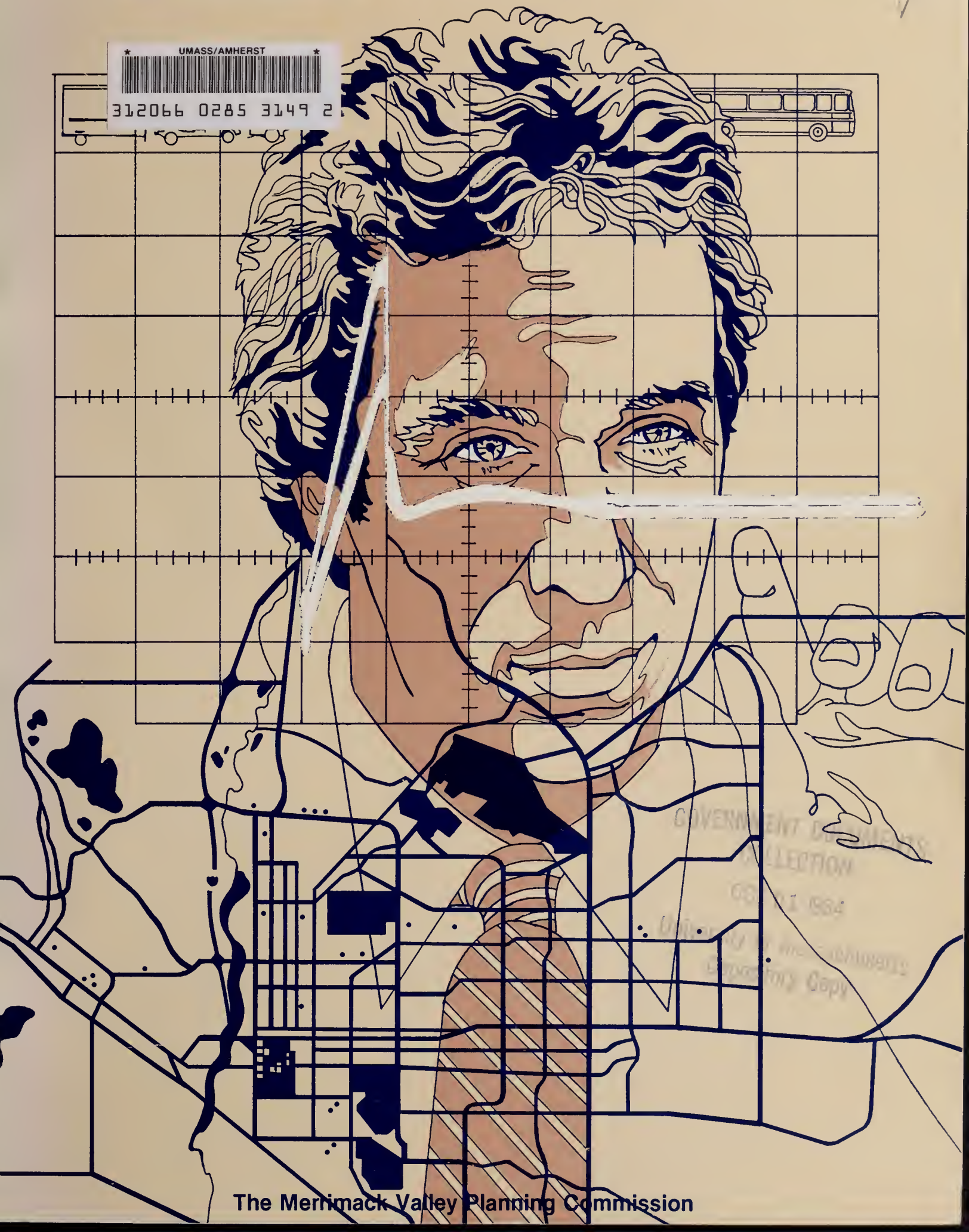

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The Merrimack Valley Planning Commission

This report was prepared under Contract #22249 with the Massachusetts Department of Public Works and the the cooperation of the Federal Highway Administration. Partial Funding was also provided by the Urban Mass Transit Administration under Contract #MA9-0086.

Introduction

The area served by the Merrimack Valley Planning Commission is located in northeastern Massachusetts and includes the following cities and towns:

Amesbury	Methuen
Andover	Newbury
Boxford	Newburyport
Georgetown	North Andover
Groveland	Rowley
Haverhill	Salisbury
Lawrence	West Newbury
Merrimac	

A majority of these communities form a large part of the Lawrence-Haverhill Massachusetts-New Hampshire Standard Metropolitan Statistical Area (SMSA).

According to current state census figures, the Region has a total population of 260,893. It encompasses an area of approximately 270 square miles.

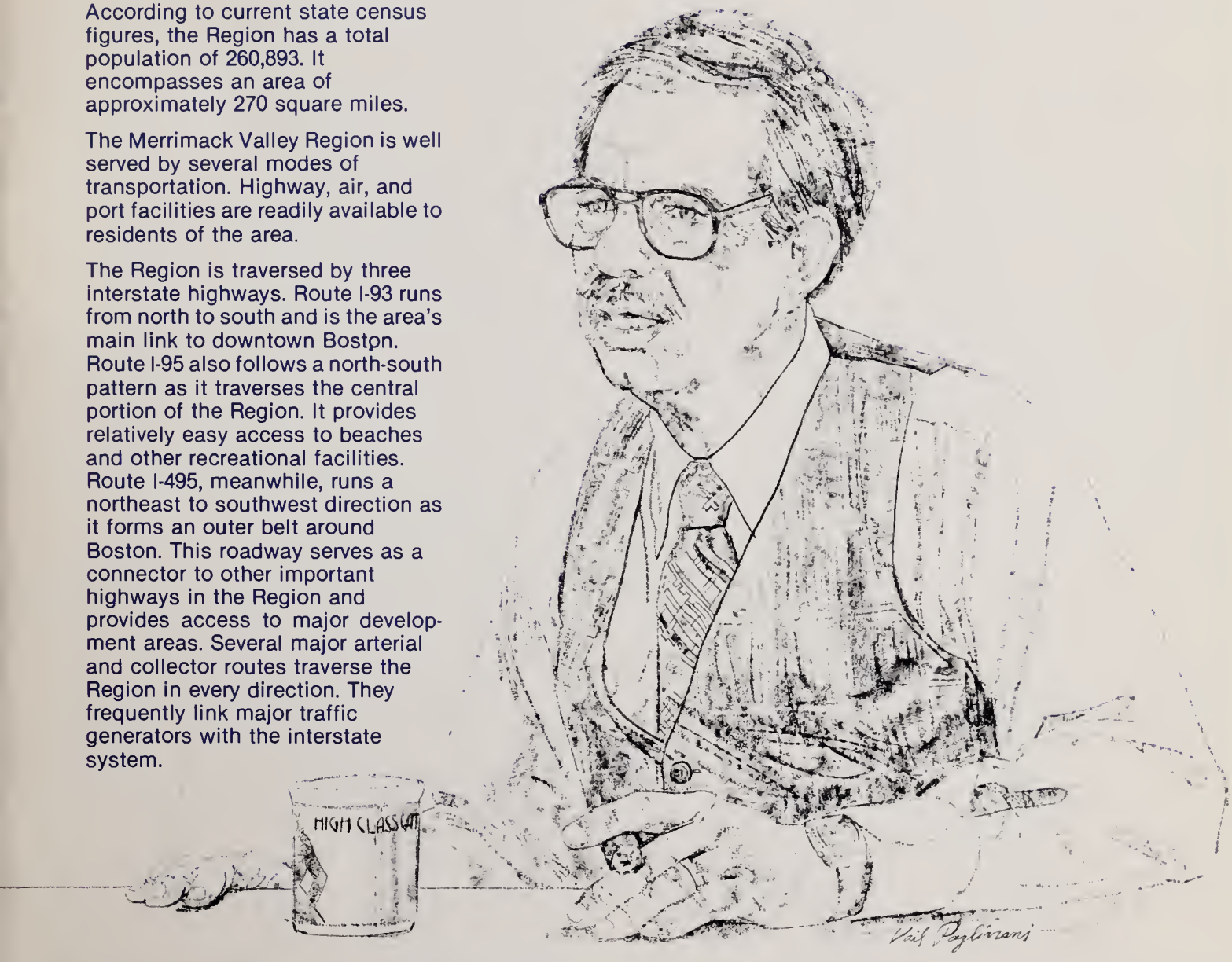
The Merrimack Valley Region is well served by several modes of transportation. Highway, air, and port facilities are readily available to residents of the area.

The Region is traversed by three interstate highways. Route I-93 runs from north to south and is the area's main link to downtown Boston. Route I-95 also follows a north-south pattern as it traverses the central portion of the Region. It provides relatively easy access to beaches and other recreational facilities. Route I-495, meanwhile, runs a northeast to southwest direction as it forms an outer belt around Boston. This roadway serves as a connector to other important highways in the Region and provides access to major development areas. Several major arterial and collector routes traverse the Region in every direction. They frequently link major traffic generators with the interstate system.

Air transportation service is readily available both within and around the area. Boston's Logan International Airport is only 27 miles away. Commercial and general aviation facilities are also available in North Andover (at Lawrence Municipal Airport) and Haverhill.

Major port facilities are also accessible to residents of the Region. These facilities, which are all within reasonable driving distance of the area, are located in: Boston and Gloucester, Massachusetts; Portland, Maine; and Portsmouth, New Hampshire.

The location of the Merrimack Valley Region in Massachusetts



MVPC Executive Director, Richard M. Gladstone

KEEP

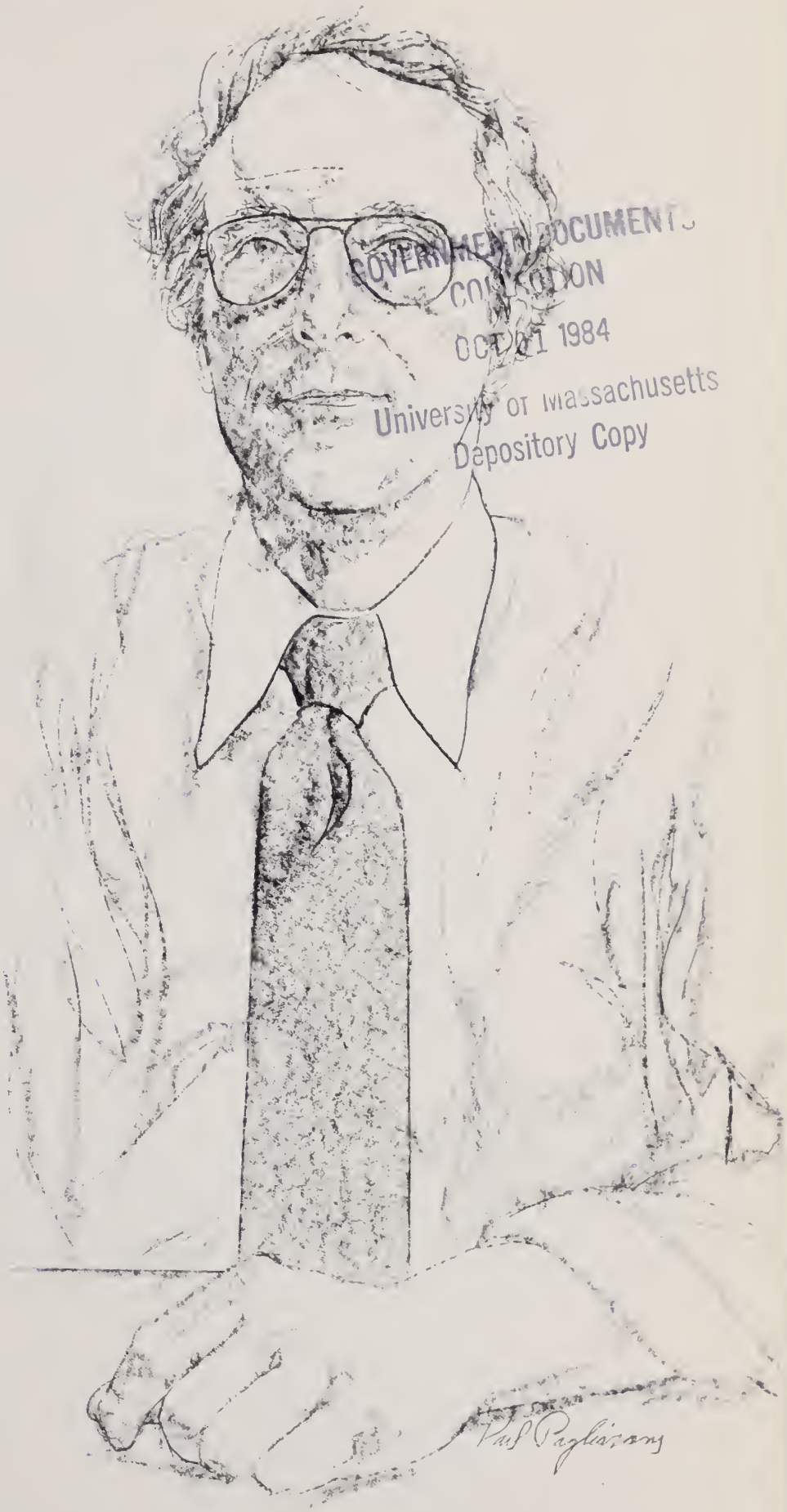
Program Manager's Report

Over the past two years, the transportation staff of the Merrimack Valley Planning Commission (MVPC) has made significant progress in identifying the major transportation issues, problems, and needs that exist in the Merrimack Valley today. This effort is timely as the transportation planning process continually becomes more complex and broader in scope. Factors such as air quality impacts, energy conservation, and increased fiscal limitations serve to further emphasize the need to clearly identify the highest priorities. Intersection improvements, park and ride facilities for commuting to greater Boston, transit efficiency and rail service issues are some of the key findings currently being addressed by our transportation planning team.

The transportation planning process, however, cannot operate effectively without your help. It is imperative that public officials as well as the general citizenry provide input towards the identification of transportation needs as well as the development of acceptable solutions. The Transportation Policy Advisory Group (TPAG) is the established mechanism to facilitate this input. Each MVPC community is entitled to at least one voting member as appointed by the chief elected official. Unfortunately, communities have not taken advantage of this important input mechanism. The TPAG has the ability to affect transportation policy in the Merrimack Valley as well as influence funding decisions. Let your chief elected officials know that you want proper representation. Ideally, of course, your attendance assures you of being heard. You can contact the MVPC at 374-0519 for times and dates of the TPAG meetings.

The transportation staff now embarks on what should be an even more challenging journey during 1983. Some of the needs of both the highway network and the transit system have been identified. Recommendations for improvements that would meet these needs have been made. Thus, a major challenge in 1983 will be to promote the implementation of these improvements as well as to continue the needs identification process. With your assistance, we can successfully meet this challenge.

R. Jeffrey Riotte
Transportation Program Manager



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Clockwise from left: Federal Highway Administration Regional Administrator, Edward Silva; MDPW Planning and Liaison Section Supervisor, Gerald Rourke; and MDPW Liaison to the MVPC, Martin Durant.

Management and Support

One of the ways that the Merrimack Valley Planning Commission (MVPC) serves its member communities is through its involvement in various transportation planning activities. The work is performed by a capable professional and support staff which is governed by a board of Commissioners representing each of the communities in the Region. Primary funding sources for the program are the Massachusetts Department of Public Works and the U.S. Department of Transportation. The transportation planning activities of the MVPC include: developing and updating a regional transportation plan, solving traffic safety and congestion problems on the Region's roadways, promoting more efficient transit service, and providing assistance to member communities in resolving transportation-related problems.

The regional transportation planning activities are integrated into state programs through the Metropolitan Planning Organization (MPO). The role of the MPO is to review and endorse the transportation planning documents as required by federal and state regulations. The following individuals and organizations are represented on the MPO: the Secretary of the Executive Office of Transportation and Construction; the Commissioner of the Department of Public Works, the Chairperson of the MVPC, and the Chairperson of the Merrimack Valley Transit Authority.

The transportation planning process must be deemed acceptable to the federal government in order for the Region to receive federal aid monies. More specifically, the planning process must be comprehensive, cooperative, and continuous throughout the Merrimack Valley Region. This is known as the 3C planning process. The implications of each element in the process are as follows:

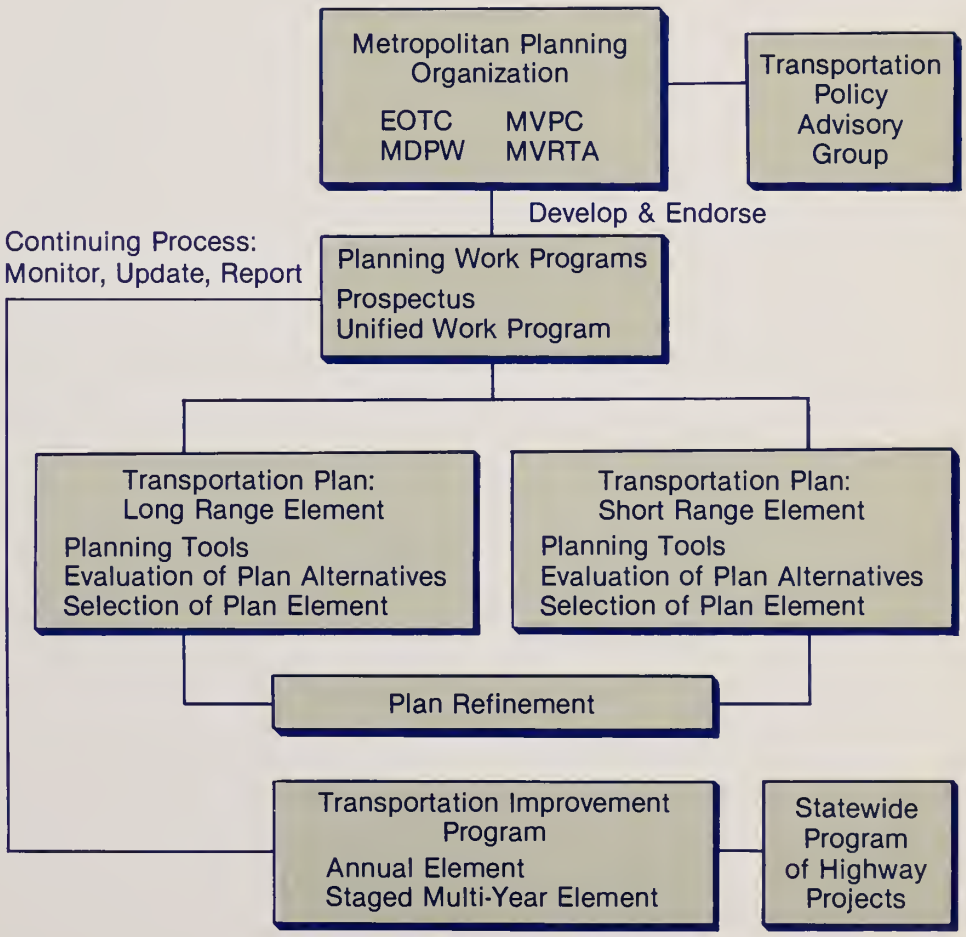
Comprehensive — The transportation planning process should consider all available methods of transportation and must be consistent with regional growth and development policies. Land use, socioeconomic, and environmental concerns should all be addressed in the planning process.

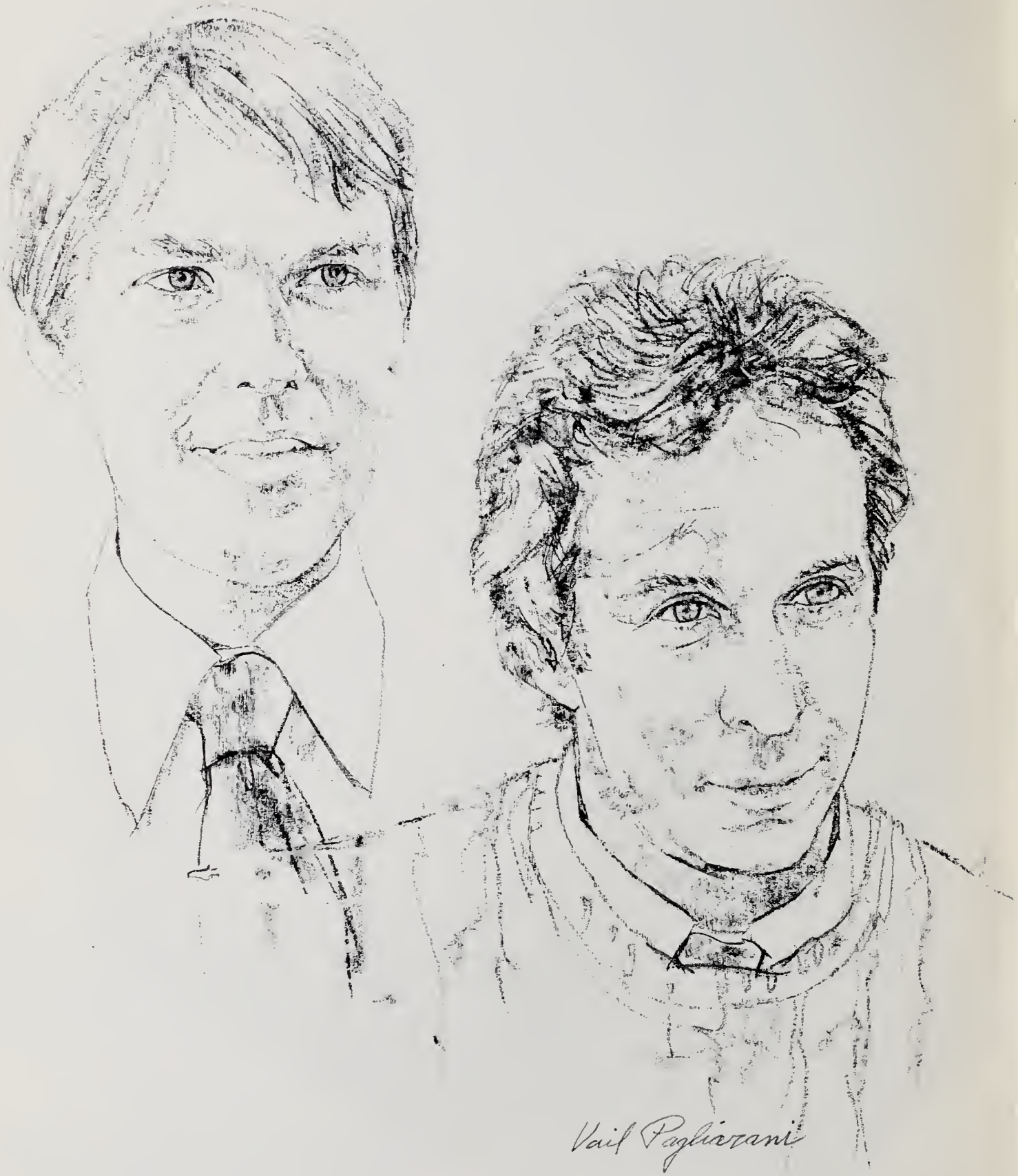
Cooperative — Planning activities must synthesize local and regional needs with state and federal policies.

Continuous — The planning process must be dynamic. It should adjust to changes in local and regional priorities as may be expressed through legislative action.

The MVPC ensures that transportation planning is responsive to community needs through the Transportation Policy Advisory Group (TPAG). The TPAG makes policy recommendations to the transportation staff of the MVPC. The group consists of delegates from member communities and from special interest groups in the Region. Private citizens are welcome and are encouraged to participate in TPAG activities.

The "3C" Transportation Planning Process





From left: Senior Planner Paul Hajec, and Junior Planner Paul Laponius.

The Transportation Plan

The Transportation Plan for the Merrimack Valley Region outlines various tranportation projects and dictates the manner in which they support the 3C process. The Plan consists of two components: the Long Range Element (LRE) and the Short Range Element. The LRE defines the long range transportation-related goals and projects planned for the Region. The Short Range Element coordinates local transportation projects through the identification and implementation of short term improvements.

The Plan addresses all modes of transportation. It is consistent with the land use plan and with the socioeconomic, environmental, and energy conservation goals for the Region. The Plan is reviewed annually to ensure that it is responsive to changes in any of these goals and/or policies.

It is the responsibility of the MVPC to work in cooperation with other state agencies to execute each element of the Regional Transportation Plan.

The 1982 Plan was unique in that it was a total rewrite of the previous document. This type of revision was necessary for two reasons. First, various studies conducted by the MVPC identified needs that were not being addressed in the 1981 Transportation Plan. Also, a series of new transportation policies had been enacted and were not accounted for in the 1981 document. Accordingly, a "new" Transportation Plan was written which completely changed the philosophy, direction, and format of previous efforts.

Short Range Element

The Short Range Element identifies low cost transportation improvement projects which can be implemented on a short term basis (i.e., within a five year period). One of the major goals of this element is to provide for efficient management of the existing transportation system. Many short range projects are only interim solutions to what could become long range problems. Some common short term projects are as follows:

(1) actions to ensure efficient and safe use of roadways (e.g., widening, resurfacing, and design improvements);
(2) traffic flow improvements at intersections;
(3) construction of new facilities to ensure adequate mobility and safety for pedestrians and bicyclists;
(4) implementation of parking control strategies;
(5) changes in work schedules, transit fare policies, and automobile taxation laws to reduce peak-period travel and encourage transit use;
(6) implementation of strategies to reduce vehicle use in congested central business districts; and
(7) actions to improve transit service.

Long Range Element

The LRE identifies transportation improvements to be implemented over the next ten to twenty-five years. In order to best serve the Region's future needs, LRE projects must be consistent with the overall growth policy of the Region. Goals and activities which are common to an LRE are:
(1) evaluation of the effectiveness of local traffic flow and traffic safety improvements;
(2) upgrading local roads, streets, and bridges to facilitate improved regional transportation;
(3) revitalization of urban core areas through the transportation planning process;
(4) improved access to major development areas;
(5) development and evaluation of energy conservation measures;
(6) implementation of a regional program to upgrade traffic control devices;
(7) improvements to the regional transportation system that would stimulate the tourist industry;
(8) transit service improvements to provide convenient access to major service areas in the Region;
(9) the implementation of para-transit service to rural areas; and
(10) the development of interregional transit service (e.g., expansion of service to Boston).

Accordingly, the MVPC staff has combined a few of these goals and activities into a single issue to form the Long Range Element of the 1982 Transportation Plan. This issue involves an attempt to provide improved access to regional growth centers as well as improvements that will increase capacity on roadways leading to these areas. In order to affect such improvements, detailed traffic operations studies will be conducted within major travel corridors projected to experience severe traffic flow and safety problems.

1982 Transportation Work Program

Management and Support
Management and Support of the "3C" Transportation Planning Process
1. Provide administative and technical support to MVPC member communities
2. Participate in informational programs
3. Modify participatory process of public and private concerns
4. Present transportation plans and programs for endorsement
5. Coordinate transportation planning activities with other regional comprehensive planning programs

Unified Work Program
Maintain a document which describes all transportation-related activities anticipated within the Region for a one-year period.

Prospectus
Maintain a document that sets forth a regional transportation planning forecast

Biennial Transportation Report
Prepare, publish, and distribute a report indicating the status of the regional transportation planning program

Comprehensive Transportation Planning
Plan Assessment and Problem Identification
1. Review and update regional data base
2. Develop criteria for prioritizing transportation projects
3. Develop local transportation improvement procedural manual

Development and Maintenance of Analytical Techniques
Refine Performance Investment Analysis Process (PIAP)
Problems and Needs Analysis
1. Conduct intersection studies
2. Conduct park and ride lot feasibility study
3. Conduct travel time study for the City of Newburyport

Plan Preparation
Review and Update Regional Transportation Plan

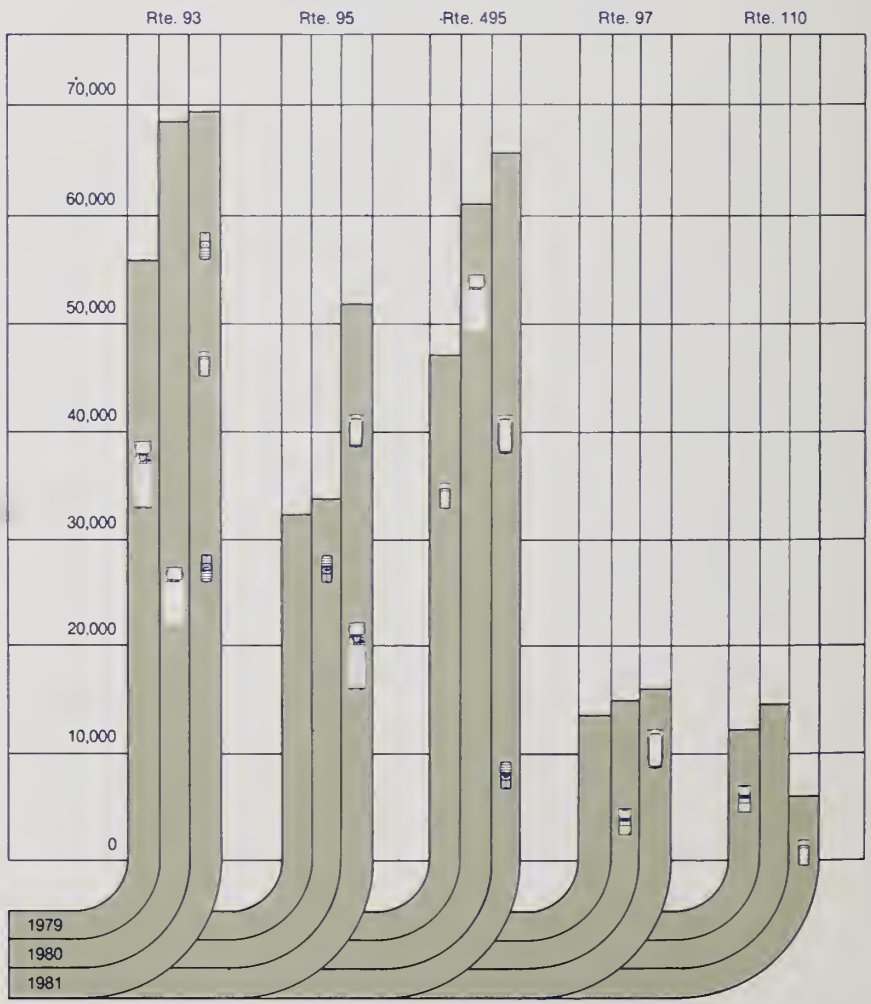
Transportation Element of the State Air Quality Implementation Plan (TESIP)
1. Plan, evaluate, and implement measures to control mobile source air pollution in the Region
2. Integrate air quality considerations into the ongoing transportation planning process

Short Range Transit Planning
1. Conduct a comprehensive operations analysis of the MVRTA bus system
2. Conduct a transfer analysis study of the MVRTA bus system
3. Conduct a user characteristics study of the MVRTA bus system
4. Conduct an evaluation of commuter rail service to the Region
5. Assist the MVRTA in its continuing effort to accommodate the elderly and handicapped population in the area

Transportation Improvement Program (TIP)
Development of TIP
Develop a staged multi-year program of multi-modal transportation projects that is consistent with the Regional Transportation Plan

Special Studies
Amesbury Traffic Circulation and Parking Study
1. Identify and evaluate existing traffic flow and safety problems within the Amesbury Central Business District and on major access routes to the downtown area
2. Estimate future traffic patterns
3. Make recommendations for improvements based on existing as well as projected problems

Traffic Volumes
Average Daily Traffic



The traffic volumes refer to the highest counts recorded on each route during each year.

Intersection Studies

During each of the past two summers, the transportation staff has conducted a detailed study of several intersections in the Region. As of the writing of this report, a total of forty sites have been studied. The main purpose of the work was to develop a prioritized list of intersection/interchange improvement recommendations for specific "problem" locations in the Region.

The first step in the study process was to select several intersections that would be analyzed as a part of this study. The selection criteria were as follows: existing traffic volume, traffic volume trends, accident rates, and the physical characteristics of each location. Interviews with local officials - usually with the highway superintendent, police chief, highway safety officer, and/or selectmen - also played a major role in the site selection process. It was felt that each of these people, through a more intimate knowledge of the needs of their community, would be able to provide valuable input to the study. Frequently, additions or deletions were made to the list of study sites as a result of these interviews.

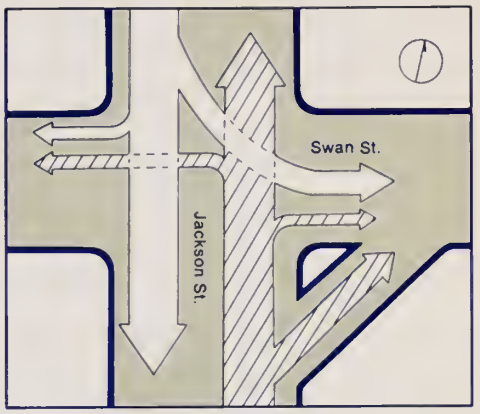
Following the site selection process, staff members conducted rather extensive field work at each location. This work included traffic counts, an inventory of traffic control devices and their operation (e.g., signal timing analyses), and an evaluation of land use and roadway design characteristics. All traffic counts - except for one - were conducted during the afternoon peak hours between 3:00 P.M. and 6:00 P.M. Between these hours, traffic was counted at 15 minute intervals for a two hour period. The late afternoon time period was chosen because, in general, it represents the time of day when traffic is heaviest. The single exception for this study was at an intersection near Newburyport High School. For this site, the peak hour was observed between 2:00 P.M. and 4:00 P.M. and the traffic count data was collected accordingly.

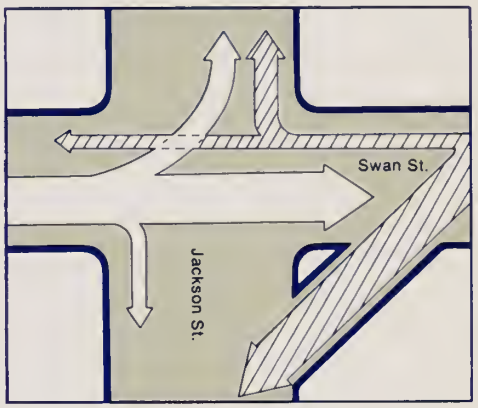
An analysis of the data revealed that, in most problem cases, traffic control devices were not operating so as to maximize traffic flow and provide safe vehicular movement through the intersection. For the purposes of this study, traffic control devices were defined as signal control lights, crosswalks, school zone signs, lane markings, and stop or yield signs.

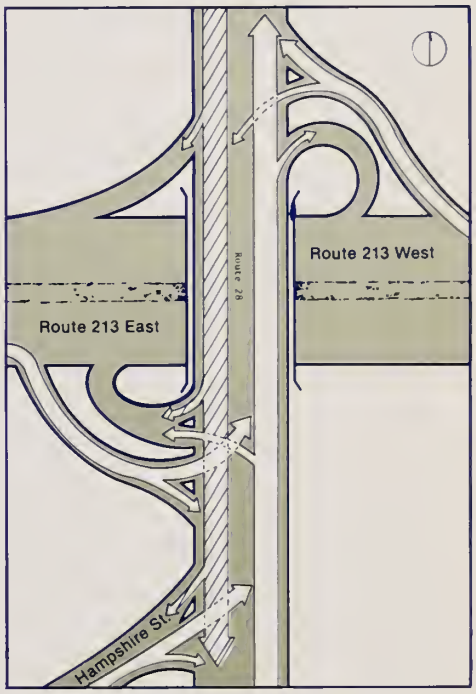
In some cases, the design characteristics of the intersection were also found to be a causal factor to traffic congestion and safety problems. Those design characteristics scrutinized closest during the intersection work included traffic islands, turning radii, line of sight, as well as the number and width of approach lanes.

Following the data collection and analysis, a list of improvement recommendations was prepared for each site. These recommendations were then presented for discussion to appropriate local, regional, and state officials. Following these discussions, minor revisions were incorporated into the original list of proposed improvements. In general, the recommendations included such things as changes to signal timing, reductions in on-street parking, and the widening or addition of approach lanes. The results of this work have been forwarded to the State Department of Public Works. It is hoped that some of the recommendations can be implemented in the near future.

Our agency plans to conduct additional studies of this type during the summer of 1983. Some of the study sites have already been selected. Nevertheless, our staff would be pleased to receive any suggestions regarding new study sites for next year.







Shown above are examples of the intersection diagrams that appeared throughout the Intersection Study Report to visually clarify documented data.

Other Transportation Studies

Work on other specific transportation studies has steadily progressed during the past two years. During this time, the staff has completed work on several studies. The major projects completed during this time period are as follows:
(1) Park and Ride Lot Feasibility Study
(2) Travel Time Study for the City of Newburyport
(3) Travel Time Study for the Lawrence-Haverhill Urbanized Area
(4) Vehicle Occupancy Study for the Lawrence-Haverhill Urbanized Area

Each of these studies was accomplished in order to help achieve the goals and objectives set forth in the Regional Transportation Plan.

The main purpose of the Park and Ride Lot Feasibility Study was to prepare a detailed evaluation of existing and potential commuter parking facilities in the Merrimack Valley. Information compiled for each site included location, usage, and ownership characteristics as well as the site's relationship to the regional transportation system. A fairly detailed graphic illustration of each location was included in the final report. The report has been distributed to the appropriate State agencies.

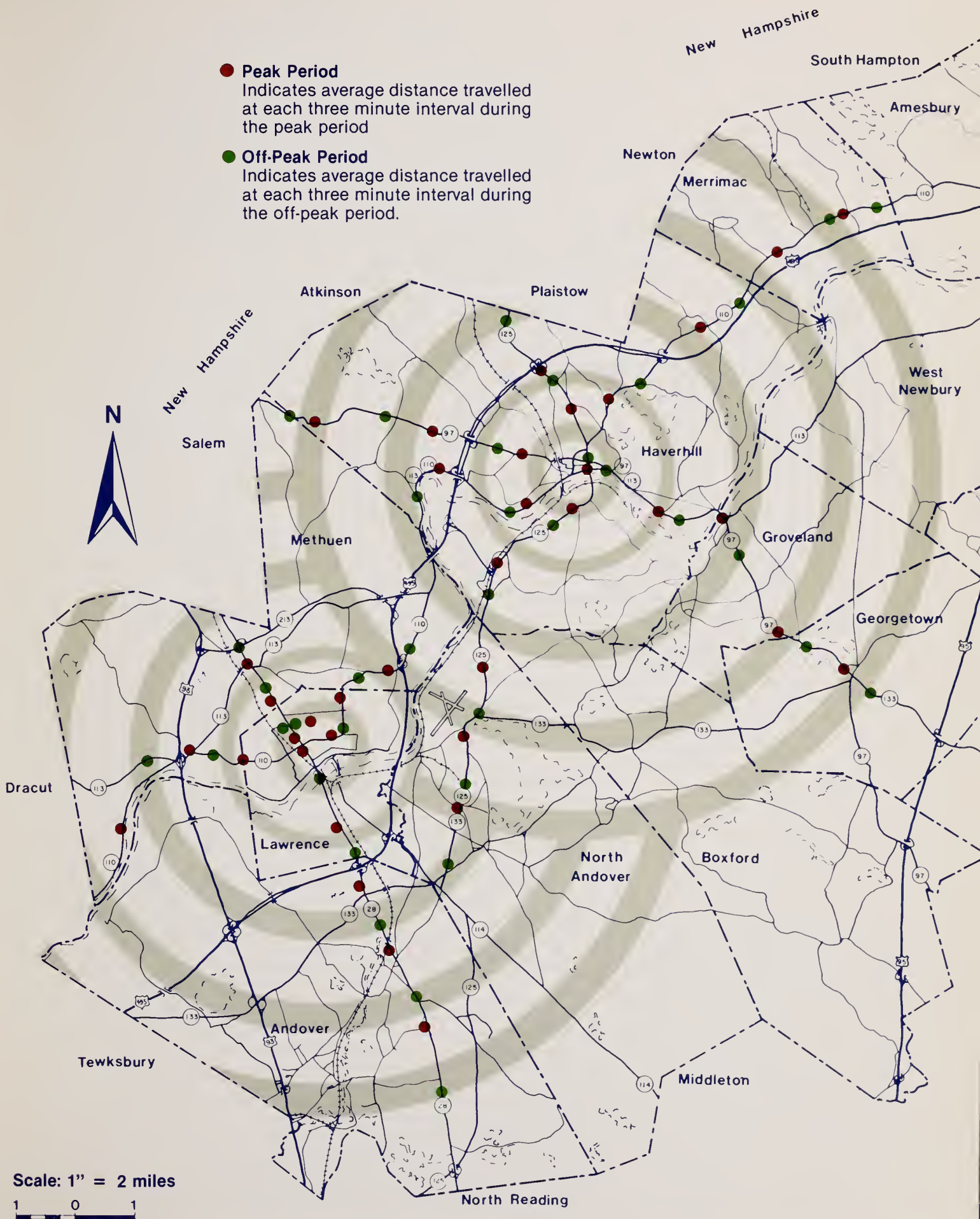
The Newburyport and the Lawrence-Haverhill Travel Time Studies were designed to determine average peak and off-peak travel times on major access routes to the downtown areas. An evaluation of travel times was done at three minute intervals for each study route in order to try to identify congestion problems on roadway segments as well as at intersections. Those locations found to be experiencing congestion problems were noted for possible future study. For example, the results of the Lawrence-Haverhill study indicated that travel was slow and average operating speeds were greatly reduced along the following routes: Routes 97 Eastbound and 125 Northbound from Washington Square in Haverhill; and Route 28 Northbound from the Transfare Station in Lawrence. The average peak hour (4 PM to 6 PM) operating speed along these routes for the initial three minutes of travel was only 6 miles per hour. Meanwhile, the average off-peak (9 AM to 3 PM) speeds along the same routes for the initial three minutes varied between 8 miles per hour and 12 miles per hour. However, these speeds increased significantly as the distance from the central city increased. In most cases, the average operating speed was approaching 30 miles per hour by the end of the second three minute interval (i.e., after six minutes of travel).

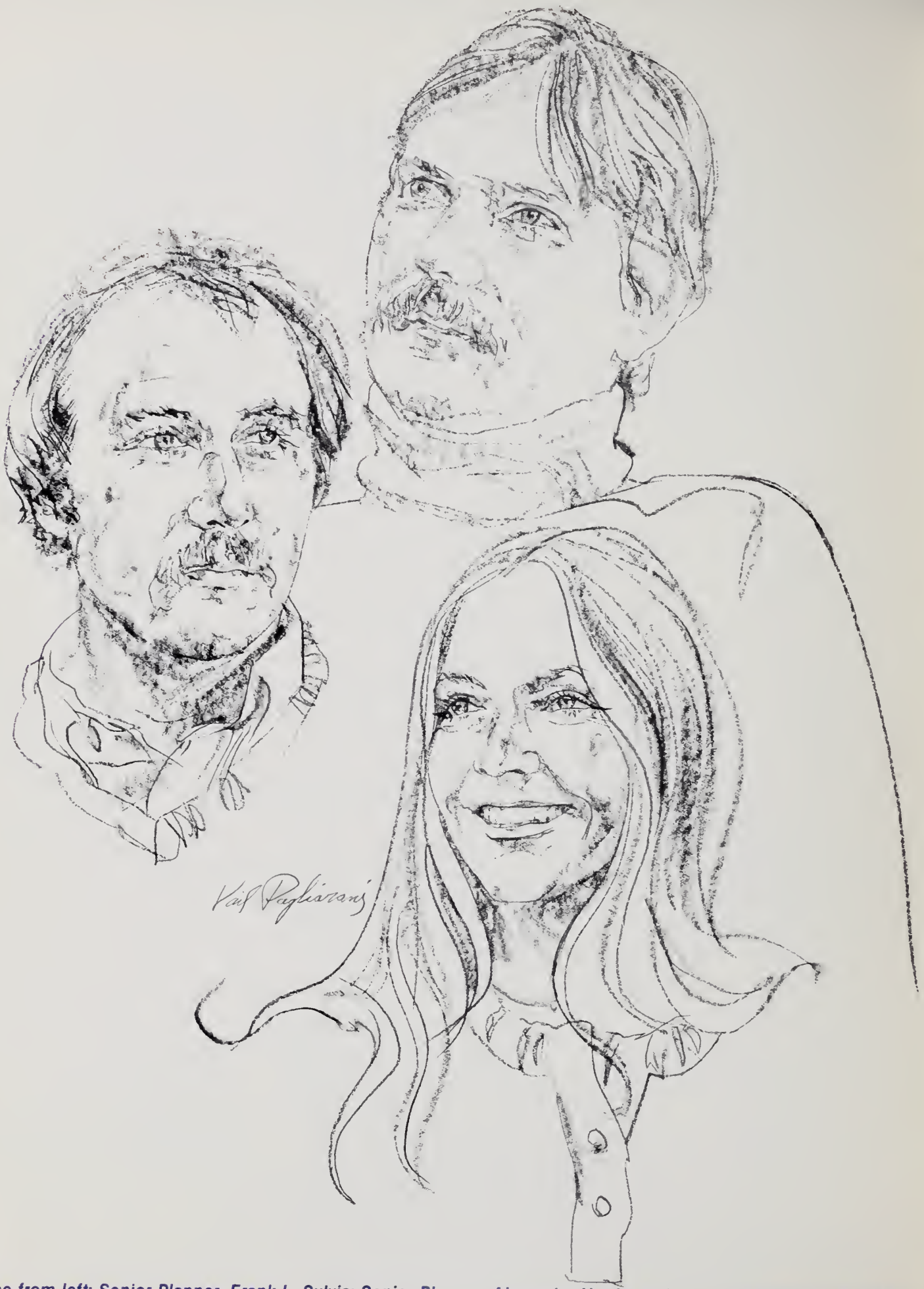
The main purpose of the Vehicle Occupancy Study was to determine average peak and off-peak automobile occupancy rates for vehicles leaving the Lawrence-Haverhill Urbanized Area. Data was obtained through field observations conducted at fourteen survey stations - six locations in Haverhill and eight locations in Lawrence. Each site was selected on the basis of being located where a major portion of outbound traffic must pass before leaving the Urbanized Area. Thus, each survey station was situated adjacent to a major roadway known to converge on either the Lawrence or Haverhill downtown districts. A comparison of data collected through this study shows that the Lawrence-Haverhill Area compares favorably with the national averages for automobile occupancy. Composite results showed that the average vehicle occupancy for the Lawrence-Haverhill Urbanized Area was 1.50 persons per vehicle at mid-day (10 AM to 12 Noon) and 1.45 persons per vehicle during the evening peak period, the Lawrence-Haverhill vehicle occupancies were 2.7% higher than the national average. Meanwhile, the figure for the evening peak period was 2.5% higher than the national average during the same hours.

Finally, the transportation planning staff continues to work on developing a booklet entitled "A Community Guide to Funding Highway Transportation Improvements." It is intended that this booklet will give communities in the Merrimack Valley a better understanding of both the Federal and State transportation funding process. It will provide guidelines and list contact people for those communities seeking funds for a transportation project. The final copy of this guidebook will soon be distributed to MVPC member communities.

Travel Time Contour Map

The Lawrence-Haverhill Urbanized Area





Clockwise from left: Senior Planner, Frank L. Sylvis; Senior Planner, Alexander Harris; and Junior Planner, Linda Sloss.

Transportation Improvement Program (TIP)

The Transportation Improvement Program, or TIP, represents one link in the Transportation Planning Process in the Merrimack Valley Region. It is by design a program for the continual improvement of the Region's transportation networks. It is a comprehensive overview of all existing planned, proposed or completed projects within the Region.

Each year this program is subjected to a complete updating. Communities are asked to submit their plans for any new projcts, and they are asked to provide information on the status of existing projects. This cooperative function between the MVPC and member communities assures that the Region in total is kept informed of all activities.

This year 14 categories for determining funding are listed in the TIP. These are: Interstate, Interstate Resurfacing, Urban Systems Earmarked (for the Lawrence-Haverhill Urbanized Area), Urban Systems Statewide (outside the Lawrence-Haverhill Urbanized Area), Consolidated Primary, UMTA-Section 5, UMTA-Section 3, Highway Bridge Replacement and Rehabilitation, Rural Secondary, Non-Federal Aid, Accelerated Highway Improvements (Bikeways), UMTA-Section 6 Demonstration Program, UMTA-Section 16 (b) (2), and Safer Off System Roads Program.

These various programs are then subdivided into two funding categories: the annual element which provides funds over the coming fiscal year for high priority projects, and the 2 to 5 year element which estimates the funding that will be necessary for a given project.

This TIP, therefore, provides a comprehensive overview of all projects in the Merrimack Valley Region. It is an example of the continuing planning that goes on in the Region, and it illustrates the cooperation that exists between the MVPC and member communities.

Relationship to the Regional Transportation Plan - How Does the TIP fit?

In developing the FY1982-1986 Transportation Improvement Program (TIP) and previous TIP's the MVPC has drawn on previously adopted regional plans such as the 1974 Transportation Plan and the 1979 Transportation Systems Management element. In essence, these documents served as a policy guide to transportation planning in the MVPC Region and a statement of the transportation direction for the Region. Projects identified in these documents have been incorporated into previous TIP's including the FY1981-1985 TIP. The Transportation Plan was completed in December of 1981 , and is endorsed by the Metropolitan Planning Organization. Reference to LRE and TSM Annual Element projects are included in the "Description" of each project.

Relationship to Air Quality

The projects in the TIP are reviewed for their impacts on regional air quality. The review is part of the process to ensure consistency with the MVPC's air quality work and the air quality improvement goals in the Section 175 air quality planning program.

During the past year staff performed an analysis on those projects which appeared on the TIP Annual Element. Projects which were deemed to have an impact on vehicle operating speed or road capacity, or those projects which would reduce vehicle miles traveled (VMT) were subjected to a quantifiable analysis. The results of this analysis, and the resultant emissions reductions were then presented, as an addendum, in the TIP.

Transportation Improvement Pr

TOWN	TYPE OF PROJECT	COST*
Amesbury	1) Class III Bikeroute Construction	$ 6,260
	2) Reconstruction of Water Street Bridge over Back River	200,000
Andover	3) Photogrammetric Survey of I-93 Corridor (includes Methuen)	3,500,000
	4) Dascomb Road Interchange (Proposed)	3,000,000
	5) Park & Ride Lot - Dascomb Road	150,000
Georgetown	6) Park & Ride Lot - Junction of Routes 97 & 133	135,000
	7) Street widening, resurfacing and traffic channalization in downtown	1,160,000
Groveland	8) Resurfacing and minor reconstruction on Route 97	600,000
	9) Resurface Route 113 from Bates Bridge to Newbury T/L	1,000,000
Haverhill	10) Resurface Route 125 from Old Ferry Road to Boston Road	200,000
	11) Rehabilitation of downtown streets, including Washington Street from County Bridge to Washington Square (two projects)	4,700,000
Lawrence	12) Traffic operation improvements to Methuen Street	1,500,000
	13) Deck Replacement on I-495 over Route 114 (preliminary engineering)	250,000
Methuen	14) Traffic improvements at intersection of Routes 110 & I-495	70,000
	15) Intersection Improvements at Oakland and Railroad Streets, and on	

*Estimates may include work in adjacent regions, and may include any combination of federal, state, and local shares.

ment Program Project Chart

TOWN	TYPE OF PROJECT	COST*
	Broadway between Rosewood and Osgood Streets (two projects)	380,000
	16) Park & Ride Lot at Pelham and Mystic Streets	15,000
	17) Route 213 access ramps at Methuen Mall	1,700,000
	18) Resurface Route 113 from Route 110 to Dracut T/L	700,000
Newbury	19) Reconstruct Old Point Road	300,000
	20) Deck Replacement on Bridge #N-10-15 on Route 1 over BMRR	570,000
	21) Class I bikepath from Newburyport T/L to Parker River Refuge	66,215
Newburyport	22) 9.9 mile bikeroute along Water Street	6,200
	23) Remove old BMRR bridges over Hancock and Chestnut Streets	100,000
	24) Reconstruction of Graf Road	250,000
North Andover	25) Resurface Route 125 from Andover T/L to Parker Street	500,000
	26) Safety improvements and traffic operations improvements at Main and Sutton Streets and Main Street and Waverly Road	300,000
Salisbury	27) Reconstruction of Ferry Road	250,000
	28) Reconstruction of Elm Street Bridge (Route 110) over BMRR	150,000
	29) Remove BMRR Bridge over Mudnock Road	150,000

Through passage of the 1970 Clean Air Act, Congress directed the Environmental Protection Agency to establish air quality standards which would protect human health and minimize damage to vegetation and property. Subsequent amendments to this Act mandated that each state be in compliance with the established standards by 1987. These amendments also required that states develop programs to monitor progress toward achieving the 1987 goals. Accordingly, standards were established which set minimum acceptable tolerance levels for air pollution resulting from mobile (e.g., automobiles) and stationary (e.g., power plants) sources. As a result of this legislation, the Governor designated the MVPC as this Region's lead agency for development of a plan to reduce mobile source air pollution. The agency has since been involved in a coordinated effort with the Department of Environmental Quality Engineering, the Department of Public Works, and the Executive Office of Transportation and Construction to develop local, regional, and statewide approaches to help meet the impending standards. Work during the past year consisted of performing detailed analysis on selected Reasonable Available Control Measures, or RACM's. These measures include the following: 1) Doubling of peak-hour transit; 2) Park-and-ride lots; 3) Demand-Responsive transit; 4) Extended-Additional bus routes; 5) Intersection improvements; 6) Special peak-hour express/ shuttle bus service; and 7) Subscription van service. These RACM's and their associated analysis were incorporated into the Transportation Element of the State Implementation Plan, or TESIP. This document supports, defines, and details the Merrimack Valley Planning Commission's Air Quality Planning efforts. It is the culmination of over two years' work, and at this writing has already been endorsed by the Metropolitan Planning Organization.

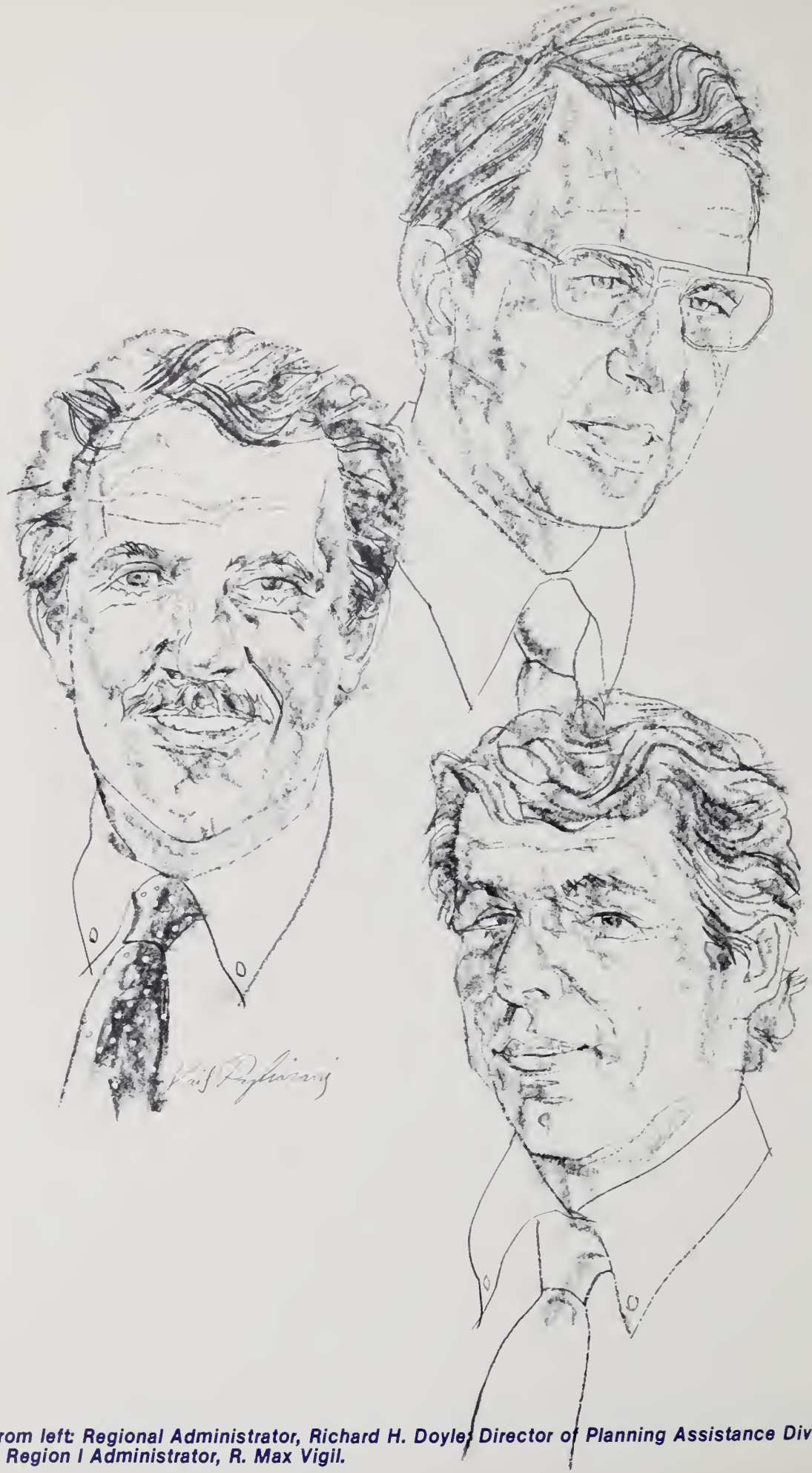
Analysis of RACM'S

The RACM's mentioned earlier were subjected to a detailed analysis by MVPC staff members. The analysis was performed in order to determine what the RACM's impact would be in many areas if implemented. These areas of analysis include: 1) Previous experience with the measure; 2) Costs of implementing the measure; 3) Political and institutional feasibility of implementing the measure; 4) Travel impacts resulting from implementation; 5) Energy savings resulting from implementation; 6) Complimentary and conflicting measures which might have some effect on the implemented measure; 7) Economic impacts if the measure were to be implemented; and 8) Air quality benefits, or, emission reductions associated with RACM implementation. The table presented on this page illustrates the associated emission reductions, and therefore, the benefits to air quality in the Region, that can be expected from the implementation of those RACM's that the Merrimack Valley MPO has committed to implement by way of endorsing the TESIP.

Anticipated Emission Reductions

Reasonable Available Control Measure	1982 HC Reductions	1987 HC Reductions Without I/M	1987 HC Reductions With I/M
Commuter Rail Park and Ride	7.8 kg/day	3.9 kg/day	2.92 kg/day
Regional Park-and-Ride Destination - Boston	14 kg/day	No Build 6.1 kg/day Build 3.5 kg/day	No Build 5.2 kg/day Build 2.7 kg/day
Park-and-Ride Newburyport	8.3 kg/day	2.1 kg/day	1.5 kg/day
Park-and-Ride Merrimac & Amesbury	6.1 kg/day	3 kg/day	2.2 kg/day
Park-and-Ride Methuen	17 kg/day	8.4 kg/day	6.3 kg/day
Park-and-Ride Haverhill	10.1 kg/day	3.2 kg/day	2.2 kg/day
Additional Bus Routes Extended Bus Routes	53.44 kg/day 12.7 kg/day	24.5 kg/day 5.6 kg/day	17.5 kg/day 4.1 kg/day
Subscription Van Service	12.8 kg/day	9.3 kg/day	6.6 kg/day
Special Peak Hour Express/Shuttle Service	6.6 kg/day	No Build 2.6 kg/day Build 5.5 kg/day	No Build 1.8 kg/day Build 4 kg/day

It can be demonstrated that HC emissions reductions can be significant for the measures subjected to analyses. Reductions with the Inspection and Maintenance Program in place range from 1.5 kg/day to as much as 17.5 kg/day. Average reductions equal 3.6 kg per day exclusive of additional bus route measure reductions.



Clockwise from left: Regional Administrator, Richard H. Doyle; Director of Planning Assistance Division, Donald M. Bell; and Region I Administrator, R. Max Vigil.

Transit Planning

The Urban Mass Transportation Administration (UMTA)

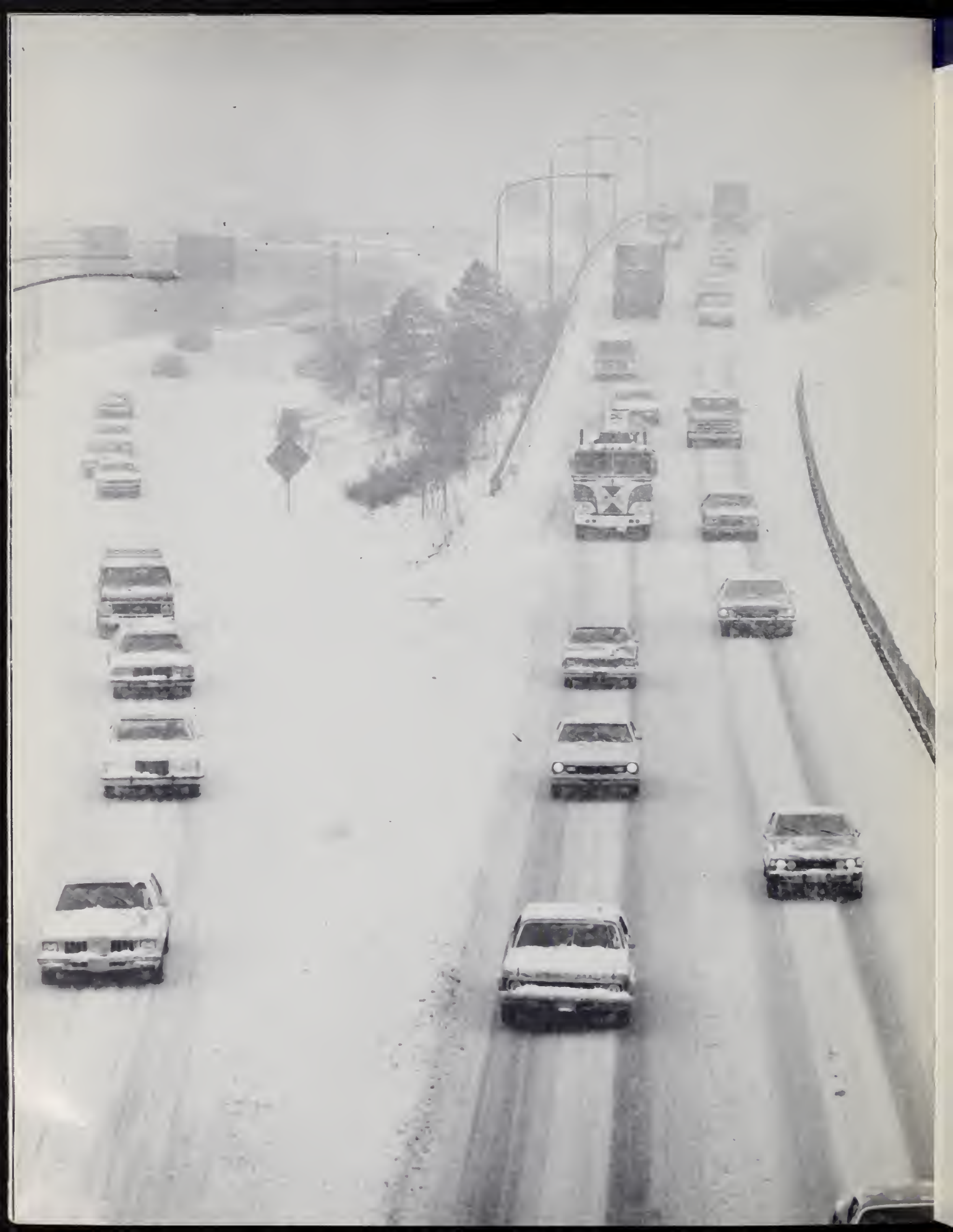
The Urban Mass Transportation Administration is an operating administration under the United States Department of Transportation. UMTA administers programs which were established under the Urban Mass Transportation Act of 1964. This Act was legislated "to assist in the development of improved mass transportation facilities, equipment, techniques and methods...to encourage the planning and establishment of area-wide urban mass transportation systems needed for economical and desirable urban development...". The Merrimack Valley Planning Commission, with aid from UMTA, pursues a continual transit planning process designed to enhance the performance of MVRTA transit services. These activities are presented below in abbreviated detail.

Transit Planning

During 1980, in cooperation with the Merrimack Valley Regional Transit Authority (MVRTA), the Merrimack Valley Planning Commission (MVPC), continued it's role as the principal transit planning agency for the Region. Transit planning activities undertaken included the Bus Service Monitoring and Evaluation Study, an evaluation of commuter rail services in the Region, the Elderly and Handicapped Transportation Transition Plan, and an impact study of school children on bus ridership in the Lawrence Area System.

The Bus Service Monitoring and Evaluation Study ran through December of 1982. During this time, the MVPC continually monitored and evaluated the fixed route system for both the Lawrence and Haverhill Area Bus System, providing not only the required operational data, but any information necessary to evaluate changes in system design or operations. Rider comments and problems will be identified and recommendations for service changes will be made in a final report.

Towards completing *The Commuter Rail Service Evaluation Study,* the MVPC, in conjunction with the MVRTA, has developed a monitoring and evaluation package designed to provide information for analysis on Commuter Rail Service in the Merrimack Valley Region. From this information, the MVPC will detail the operation of rail service and will make recommendations for future rail service planning. The report will contain data on passenger usage, passenger attitudes regarding the service, efficiency of operation, and scheduling and reliability. Problem areas will be detailed, and recommendations will be made for their elimination.



Recent Transit Service Improvements

New buses in the Haverhill and Lawrence system:

In April of 1980, the Haverhill portion of the MVRTA System added five new buses. These vehicles are smaller and more maneuverable. They service six city routes and one inter-city (Haverhill to Lawrence) route. The buses have been painted red, white and blue and are highly distinguishable in city traffic. The Lawrence buses are of the Advance Design variety. They are equipped with a "lift" option for wheelchair users, and a "kneeling" option for those people who have limited ability for boarding buses. In addition, five remanufactured buses have been added to the Haverhill fleet and ten were added in Lawrence. The MVPC and MVRTA will be monitoring ridership of these buses over the coming months in an effort to determine potential ridership increases by the elderly and handicapped as well as the general public.

Doubling of peak-hour bus service in Haverhill and Lawrence:

In a report prepared by the MVPC in July of 1978, a recommendation was made to double peak hour bus service in the Merrimack Valley Region. Peak hour service is between 6:00 A.M. and 9:00 A.M. in the morning, and between 3:00 P.M. and 6:00 P.M. in the evening. Off peak hours are the hours between 9:00 A.M. and 3:00 P.M. Peak hour service has been doubled in order to properly serve the Region's populace. This facilitates commuters in getting to their place of employment. The service will be continually monitored to ascertain it's performance levels and to see if any further schedule changes are necessitated.

Demand-responsive service in Andover, Methuen, Greater Lawrence, and North Andover:

Under the auspices of the Merrimack Valley Regional Transit Authority, Weebus transports handicapped, regardless of age, and those residents who are sixty years of age and over who find it difficult to use or do not have access to available MVRTA regular route service.

Transportation is provided within the Town of Andover, the Town of North Andover, and the Cityknown as the Town of Methuen, as well as between any other Greater Lawrence city or town (Lawrence, Methuen, North Andover).

The institution of Commuter Rail Service in the Region:

Commuter rail service was instituted in the Merrimack Valley Region in December of 1979. The service serves 5 stations within the Region. They are: 1) Haverhill; 2) Bradford; 3) Lawrence; 4)Andover; 5) Ballardvale. There are now 8 trains from Boston during the late afternoon and early evening. The MVPC, in conjunction with the MVRTA, has undertaken a study of commuter rail in the Region. From this study, planning recommendations for future commuter rail changes, if they are deemed necessary, will be made.

Shuttle bus service in downtown Lawrence:

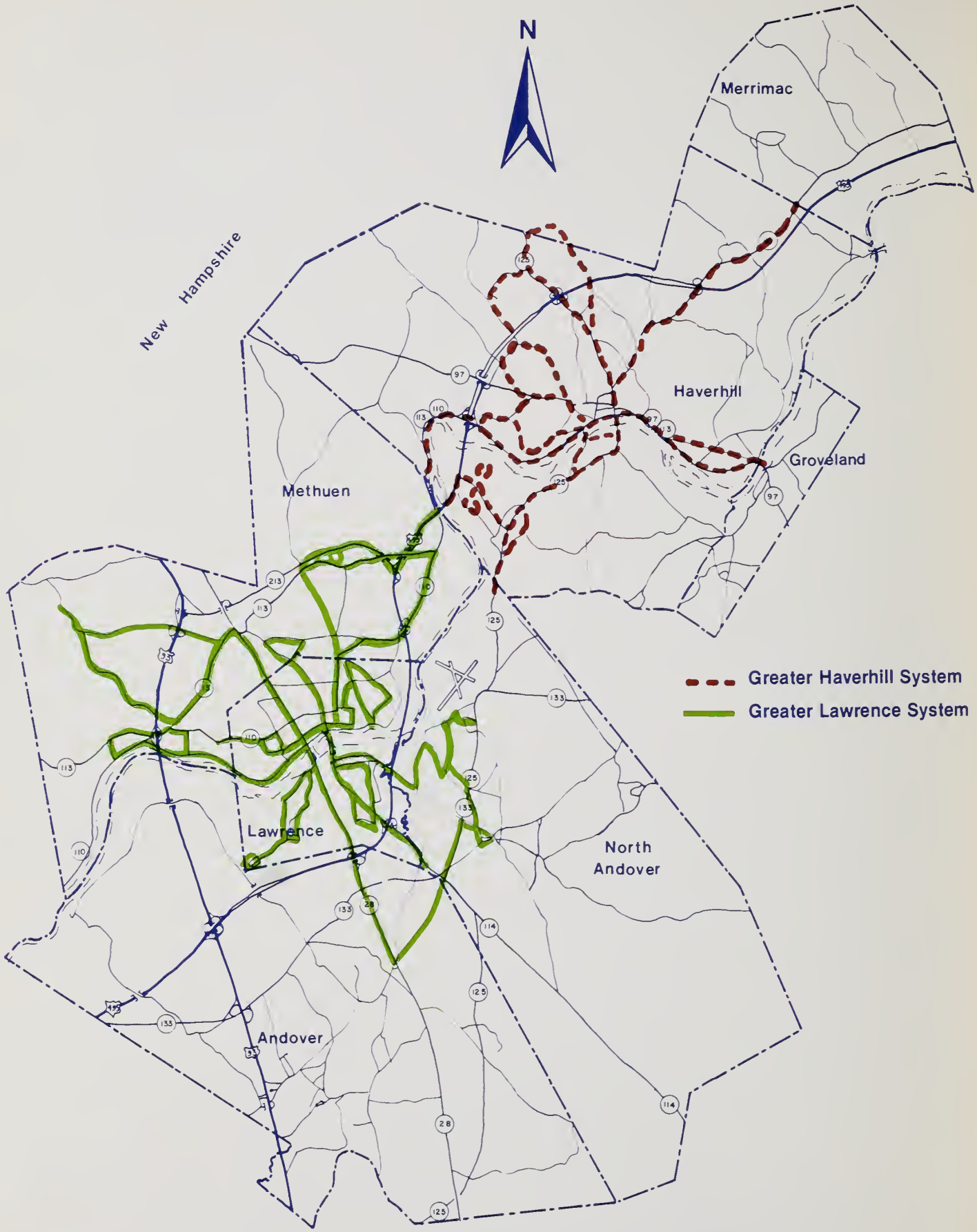
As part of the Lawrence downtown revitalization effort, a shuttle bus system has been implemented. The MVRTA has on line four buses which will provide public transportation for the downtown area. The buses will operate on an Essex Street-Common Street loop, and a Municipal Parking Lot-City Hall loop. Bus stops and shelters will be located at key points to provide pedestrian access to the shuttle system.

Scheduled Transit Improvements

Bus stops and shelters:

The MVPC will prepare a bus stop and shelter location study for the MVRTA. The study will develop a methodology for locating bus stops and shelters, and will identify locations where large numbers of patrons board the buses.

MVRTA Bus Service

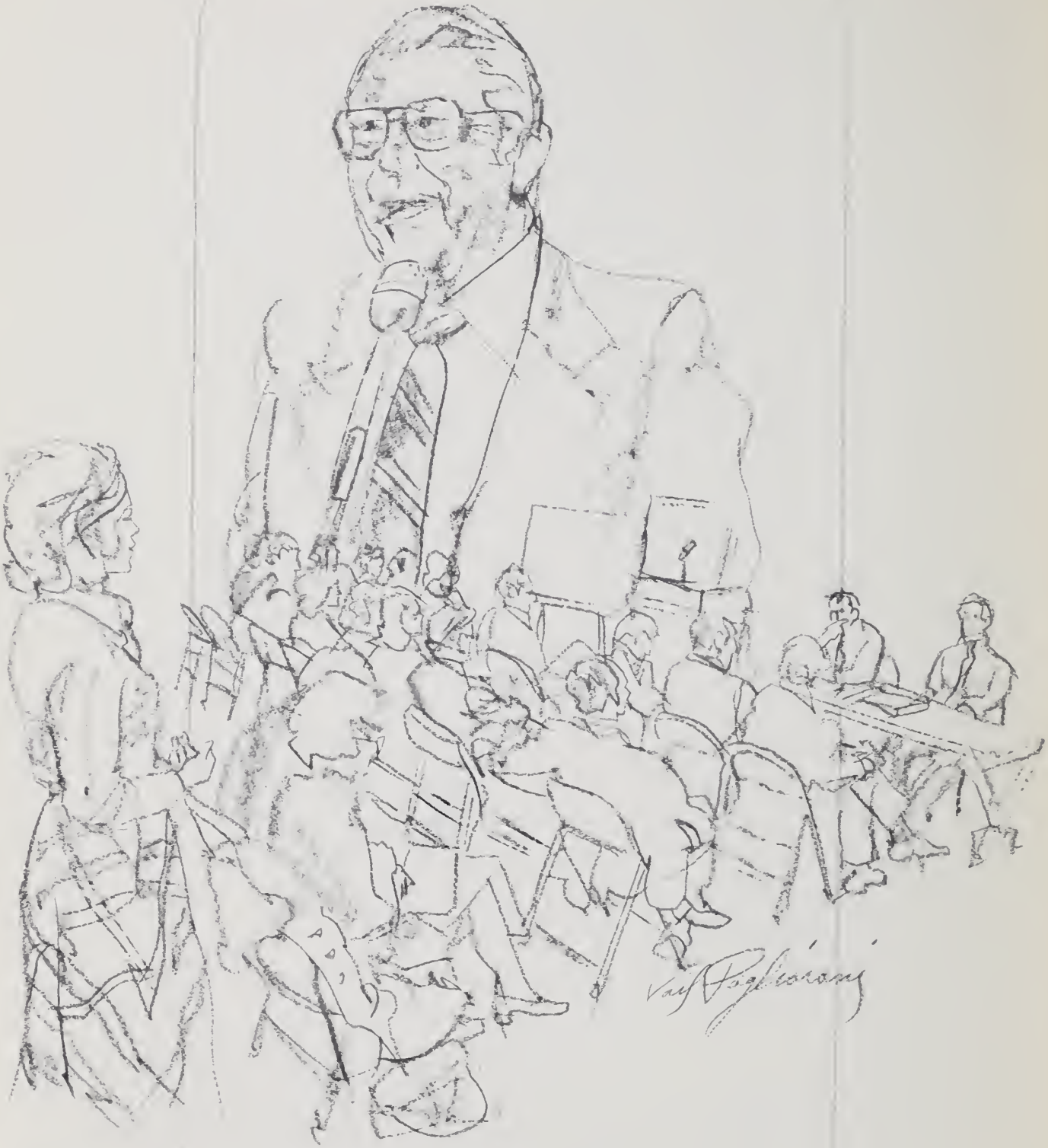


Transit Service

Under the auspices of the MVRTA, Haverhill has been receiving fixed route bus service since October 1975. Lawrence, Methuen and North Andover have been receiving service since November 1977. Andover began receiving service in 1978.

The map of the Greater Lawrence and Haverhill area, opposite, shows the area presently being served by the MVRTA.

Features of this service include:
1. Weekday service provided from 5:15 A.M. to 6:30 P.M.
2. In Lawrence, a seven bus system serving ten routes during off-peak hours and a ten bus system serving the ten routes during peak hours.
In Haverhill a three bus system serving six routes during off-peak hours and a six bus system serving the six routes during peak hours. (Peak hours fall between 5:00-9:00 A.M. and 3:00-6:00 P.M.)
3. An intercity bus service between Methuen, and Haverhill with stops at the Methuen Mall, Ward Hill Industrial Park, and Washington Square, Haverhill.
4. A schedule designed to coordinate arrival and departure times in downtown Lawrence and Washington Square, Haverhill so as to facilitate transfers by bus patrons.
5. Thirty to forty minute headways (the time between buses) along routes in the Greater Lawrence and Haverhill area, including the Lawrence-Methuen-Haverhill intercity service.
6. The following are bus system one way fares:
Haverhill and Lawrence
Adults (age 18 and over)—50¢
Elderly (age 60 and over)—25¢
Students (age 6 to 12)—25¢
Transfers — free
Intercity Haverhill-Methuen-Lawrence
Adults (age 18 and over)—75¢
Elderly (age 60 and over)—35¢
Students (age 6 to 12)—35¢
Children (under 6)—free
*Transfers from local buses to intercity buses are allowed as follows:
Adults, transfer slips plus 25¢; Elderly and Students, transfer slip plus 10¢. Payment of full fare required without transfer slip.
7. Elderly and Handicapped Service:
Andover, Methuen and North Andover are served by the Weebus service, which is available to any resident who is transportion handicapped regardless of age, and to those residents who are sixty years of age and over who find it difficult to use or do not have access to available MVRTA regular route service. In Lawrence, lift-equipped bus service is available as well as the Transfare program, which allows Elderly and Handicapped to ride both taxis and buses at a reduced rate.



Citizen Participation

Public involvement in transportation planning is important to ensure that the process is responsive to community needs. All phases of the transportation planning program at the Merrimack Valley Planning Commission include an effort to encourage and solicit citizen involvement.

One avenue for citizen participation is through the Transportation Policy Advisory Group (TPAG). The principal function of this group is to make policy recommendations to the transportation staff of the MVPC and to the Commission. Members of the group include appointed delegates from each city and town in the Region. These individuals form the "official," or voting, membership on the TPAG. However, interested citizens are also encouraged to sit-in on TPAG meetings and to express their views to the staff and voting members.

Residents of the MVPC Region are also urged to participate in the planning process by joining task forces and other special committees. These task forces and committees are usually formed whenever a major study is undertaken. Input from these groups is especially important whenever changes or improvements to the Regional transportation system are being considered.

Citizen Participation Activities in 1981 - 1982

TPAG Meetings. Quarterly meetings were held to review and endorse transportation planning documents as well as to discuss the MVPC transportation programs.

Air Quality. A task force met regularly to assist the MVPC in selecting appropriate strategies for reducing air pollution.

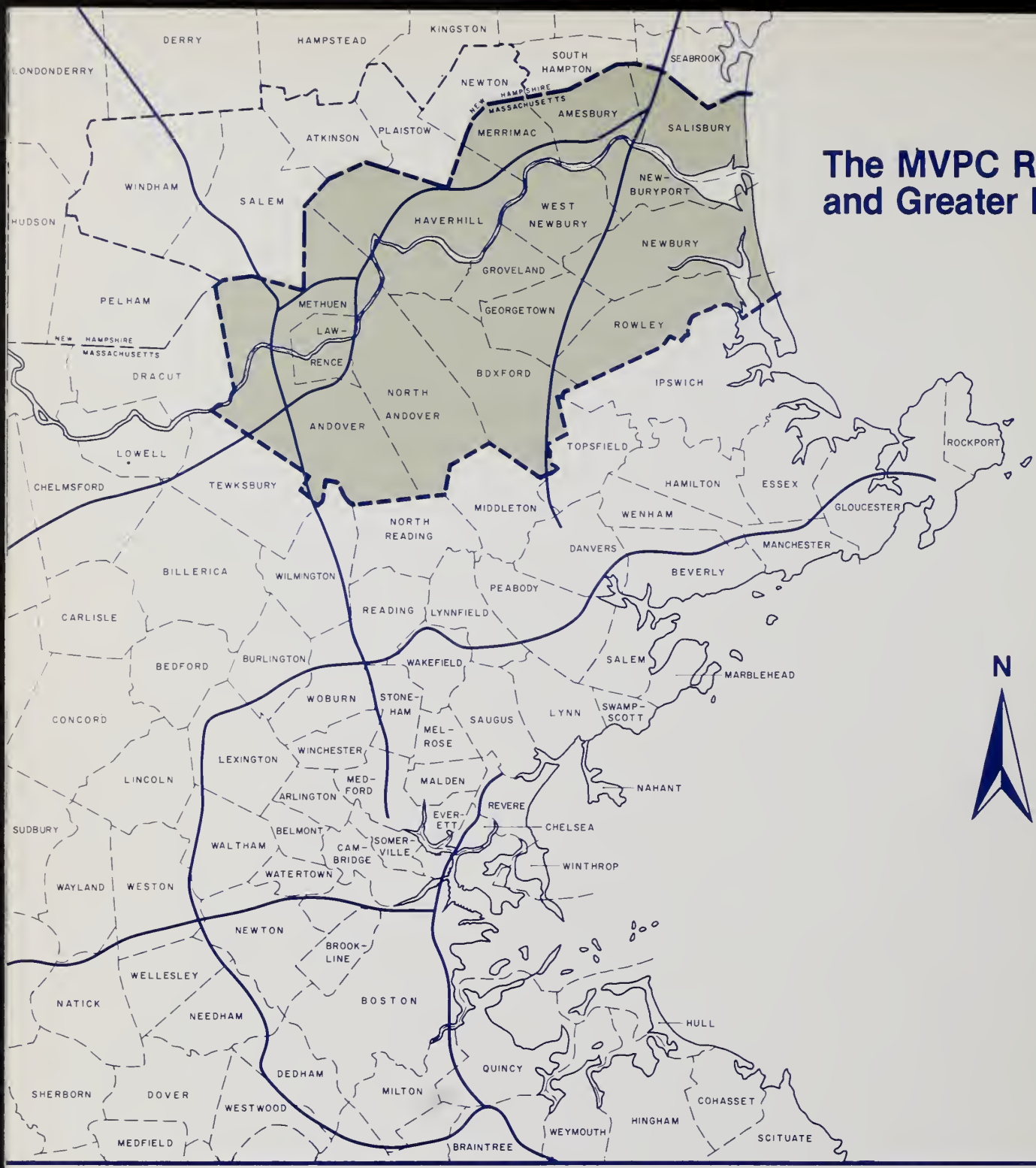
The MVPC Newsletter, published at various times during the year, contained a separate section updating the activities of the transportation planning program. This section usually included a progress report on ongoing studies as well as presentation of the findings of completed work. Major changes to the Regional Transportation Plan, which were made during the summer of 1981, were also presented for review and informational purposes.

Staff members attended meetings as needed to explain the findings of studies and to encourage support of future activities. It was hoped that this availability would stimulate interest in the program and result in feedback from communities in the Region.

BIKE ROUTE

Publications

Transportation Biennial Report 81-82, February 1983
A Community Guide to Funding Highway Transportation Improvements, February 1983
1983 Transportation Plan for the Merrimack Valley Region, January 1983
1983 Unified Work Program for the Merrimack Valley Metropolitan Planning Organization, December 1982
Transportation Element of the State Implementation Plan, December 1982
Commuter Parking in the Merrimack Valley Planning Commission Region, September 1982
Transportation Improvement Program for the Merrimack Valley Planning Commission: FY 1983 - FY 1987, September 1982
Travel Time Study for the City of Newburyport, September 1982
Elderly and Handicapped Transportation Plan Update, June 1982
Prospectus for a Comprehensive Transportation Planning Process for the Merrimack Valley, December 1981
1982 Transportation Plan for the Merrimack Valley Region, December 1981
1982 Unified Work Program for the Merrimack Valley Metropolitan Planning Organization, December 1981
A Two Step Proposal for a Comprehensive Operations Analysis for the MVRTA, October 1981
Transportation Improvement Program for the Merrimack Valley Planning Commission: FY 1982-1986, September 1981
Vehicle Occupancy Study for the Lawrence-Haverhill Urbanized Area, June 1981
Travel Time Study for the Lawrence-Haverhill Urbanized Area, April 1981
Transportation Annual Review Report 1980, January 1981
Screening of Measures to Reduce Air Pollution in the Merrimack Valley Planning Commission Region, December 1980
Paratransit Alternatives Study, October 1980
An Analysis of MDPW Traffic Accident Data (1974-1978), July 1980
Impact Study; School Children Ridership on the Lawrence Area Bus System, July 1980
Energy Contingency Plan Major Employer Access Study June 1980
Fixed Route Bus Service Monitoring and Evaluation Package for the Merrimack Valley, September 1979
Elderly and Handicapped Service Evaluation Package, August 1979
Northeast Resource Recovery Facility Access Corridor Planning Study, August 1979
Rocks Village Bridge Corridor Planning Study Summary Report, October 1978



Executive Director
Richard M. Gladstone

Transportation Staff
R. Jeffrey Riotte, Project Manager
Paul J. Hajec, Senior Planner
Alexander Harris, Senior Planner
Frank L. Sylvis, Senior Planner
Paul Laponius, Junior Planner
Linda Sloss, Junior Planner

Design/Illustration
Vail Pagliarani

Photography
E. P. Jones
Jane Mahoney
Frank L. Sylvis

Typists
Dianne M. O'Neil
Malinda McPhee

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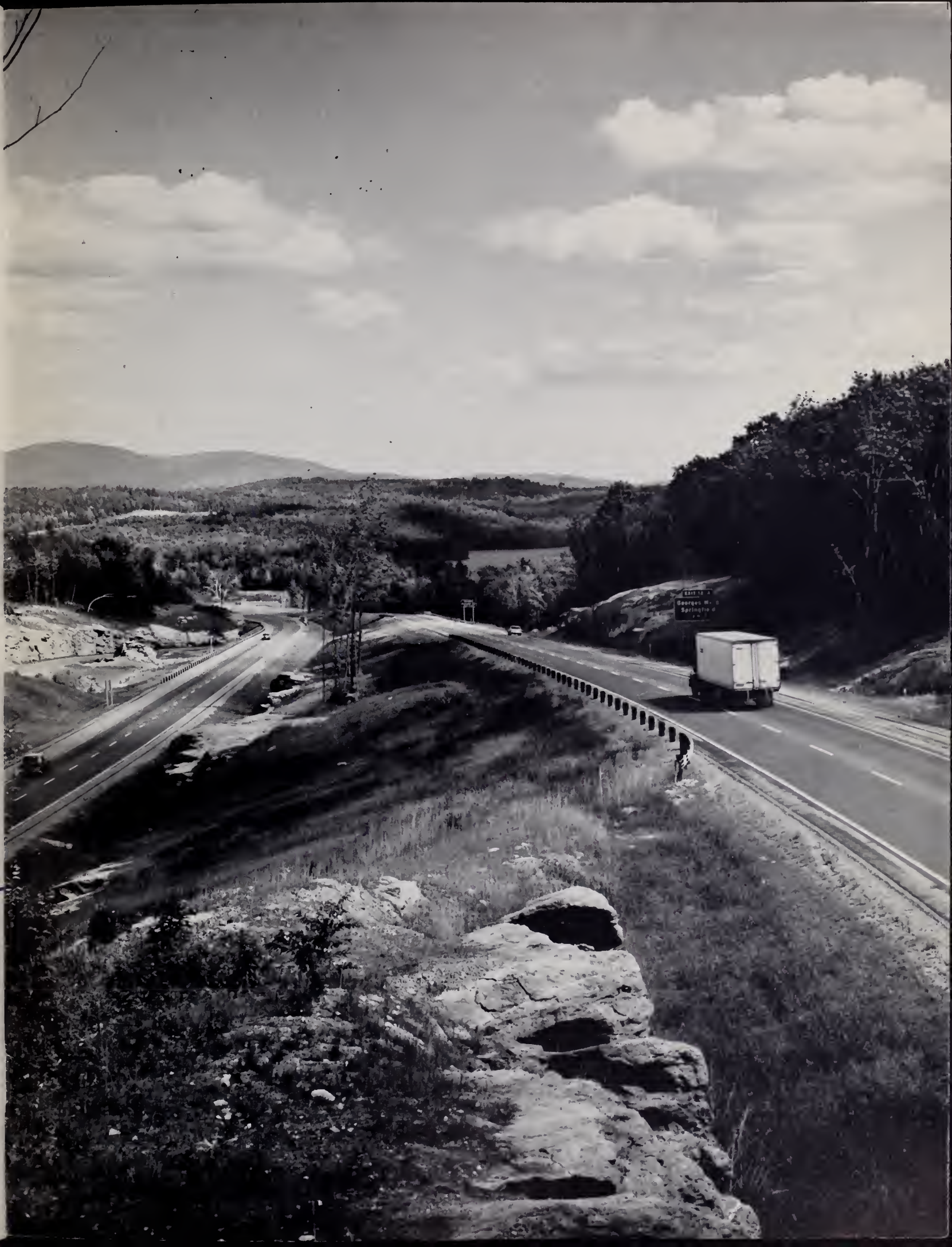

Merrimack Valley Planning Commission 350 Main St., Haverhill, Ma 01830 (617) 374-0519